OK TO ENTER: /N.B./

08/03/2008

AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph beginning on page 3, line 14 and ending at page 4, line 12, as follows:

For computing a contour, there are basically 2 degrees of freedom per input point. According to preferred embodiments of the invention, to define the shape of the final computed contour might require approximately 20 degrees of freedom, but the invention can achieve this using only, for example, 3 input points i.e. 6 degrees of freedom. In more detail, the number of degrees of freedom is related to the amount of information required from a user to obtain the contour of a desired shape. For instance, it might take 10 points to achieve a visually acceptable contour using a standard parametric curve (e.g. linear interpolation between points, or a low-degree B-spline, such as quadratic or cubic, which is an extension of linear interpolation to a piecewise polynomial curve). These parametric curves are very commonly used, for example in graphics software for drawing free-form curves. A piecewise linear is a very simplistic curve in the sense that in order to define the location anywhere along the curve you just need to know the 2 closest nodes (points) along the curve and draw a straight line between them. For a B-spline, it is not the 2 closest, but the 3 or 4 closest (for quadratic and cubic, respectively), so it is only slightly more sophisticated. However, the present invention is much more sophisticated because there is a lot more information about the shape of the curve inside the definition of the curve itself. This~~: this~~ is what enables the user to input a minimal number of points. It is not necessary for the user to input all the information on the shape of the curve, e.g. by clicking a mouse at many points along the curve~~; instead~~. Instead, much of the information is already stored in advance in the form of, for example, the average contour shape and a statistical shape model obtained from a database of known contours. Thus the invention enables the user to input only a few specific points to define the desired contour, and fewer points than would be required to define that contour from scratch. With a B-spline, you can draw whatever shape you want, but it takes a lot of points (degrees of freedom) to get it right. With embodiments of the invention you can draw only specific contours, for example left ventricular endocardiae (depending on the database used), but it requires only very few input points to do so.

Please amend the paragraph beginning on page 6, line 13 and ending at line 22, as follows:

Figure 3 is a tomographic image of the heart showing mainly the left ventricle 16. The image is a long-axis view i.e. a cross-sectional image in a plane substantially containing the long axis. The particular image in Fig. 3 is a contrast enhanced ultrasound image (echocardiogram). However, the invention can be used with images obtained by any other suitable modality, for example nuclear medicine, X-ray (fluoroscopy or ventriculography), magnetic resonance imaging and so on. The light region in the middle of the image of Figure 3 corresponds to the left ventricular cavity 24. The image in Figure 3 is ~~the~~ oriented opposite ~~way up to the diagram of~~to that shown in Figure 2 in that in Figure 3 the apex 26 is at the top. The roots or bases of the left and right mitral valve leaflets are indicated at 30 and 32.

Please amend the paragraph beginning on page 7, line 18 and ending at line 25, as follows:

In the present example, the three predetermined anatomical landmarks are the root of the left mitral valve leaflet, the apex, and the root of the right mitral valve leaflet. Figure 4 shows the three input points as the light circles indicated at 50, 52 and 54, respectively. The three points can be input very quickly just by three mouse clicks. It is not necessary for the input points to be highly accurate, for example, an input point may just be indicative of the relevant landmark and could be anywhere within, for example, 5 mm of the landmark. The process by which the contour is obtained and improved will be described below.